

Title: APPARATUS AND METHOD FOR DISPLAYING INFORMATION
RELATED TO A MACHINE

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Atty Docket No.: 00-450

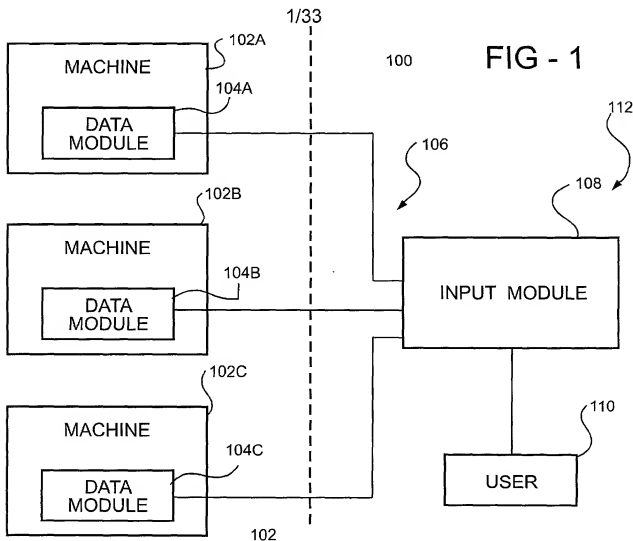


FIG - 2

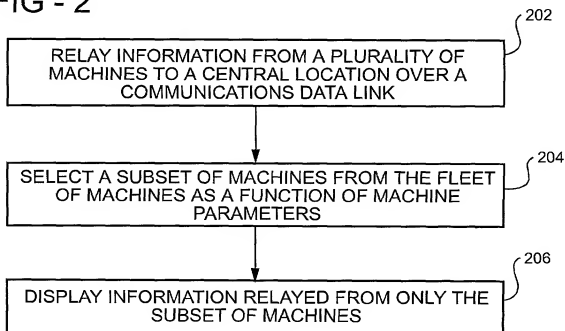


FIG - 3

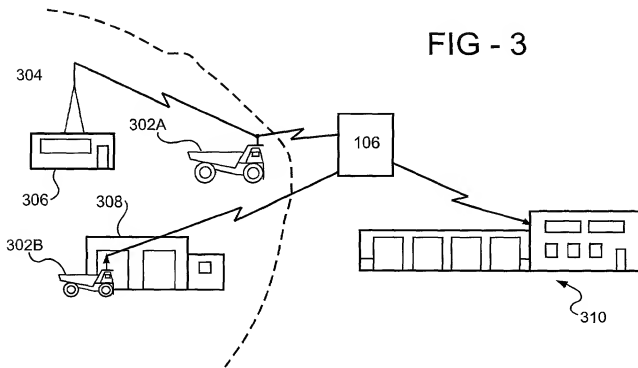


FIG - 5

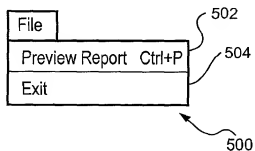


FIG - 6

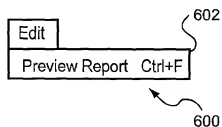
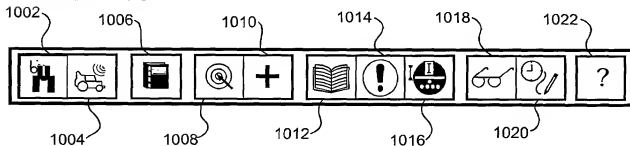


FIG - 10



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FIG - 4

Search Equipment - Caterpillar Product Link System

File Edit View Tasks Help

Equipment

Make ALL Model Serial Unit

Registration Status

☒ Registered ☐ Deregistered

Find

Ready

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FIG - 7

702	View	
704	✓ Toolbar	
704	✓ Status Bar	
706	View Registry	Ctrl+R
708	View Grief	Ctrl+G
710	View Service Meter Adjustments	Ctrl+J
712	View System Tables	Ctrl+Y
714	View Product Watch	Ctrl+W

FIG - 8

	Tasks	
802	✓ Search Equipment	Ctrl+Q
804	Send Commands	Ctrl+N
806	Reports	Ctrl+O
808	Working with Targets	Ctrl+T
810	Working with Event Reactions	Ctrl+E
812	Working with Diagnostic Reactions	Ctrl+D
814	Working with Level Reactions	Ctrl+L
816	Working with Alarm Reactions	Ctrl+A
818	Working with Product Watch Descriptions	Ctrl+H

800

FIG - 9

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FIG - 11

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Make	Model	Serial	Unit	Date / Time	SNU	Fuel	Location
AA	D9R	8BL01064	D43000009	04/26/2000 12:26:01 PM	9063	101740	7.1 miles W of Huel
AA	CHAL35	8DN00525	H39000018	04/26/2000 12:21:36 PM	3962		19.7 miles W of Del
AA	D5C	6CS00467	B19000011	04/26/2000 12:18:20 PM	982		3.9 miles S of Nueva
AA	CHAL65C	2ZJO2409	H39000025	04/26/2000 12:07:14 PM	2812		2.5 miles N of Santa
AA	D6X	AAK00006	EAE100000	04/26/2000 12:06:43 PM	374		19.4 miles W of Hol
AA	D5M	6GN01196	B19000024	04/26/2000 12:04:27 PM	506		8.1 miles NW of Alle
AA	416C	4ZN17140	E25000001	04/26/2000 11:58:33 AM	196		3.4 miles NW of Miss
AA	973	66G00646	N02000000	04/26/2000 11:53:47 AM	3111		7.8 miles W of E of Far
AA	D6MXB	ALH00002	EAE100004	04/26/2000 11:51:55 AM	107		30.3 miles E of Far
AA	CHAL45	1DR01733	H390000021	04/26/2000 11:50:47 AM	1189		22.3 miles SW of Ma
AA	CHAL45	1DR01740	H390000031	04/26/2000 11:45:56 AM	1956		2.3 miles S of Salina
AA	CHAL65C	2ZJO2434	H390000021	04/26/2000 11:44:36 AM	1848		12.6 miles SW of Le
AA	776D	2YW00094	E35000006	04/26/2000 11:37:48 AM	10863	232819	10.7 miles NW of Fa
AA	CHAL65C	9TK01973	H390000034	04/26/2000 11:23:29 AM	3094		1.5 miles NW of Se
AA	315B	3AW01389	H18000002	04/26/2000 11:18:17 AM	954		4.2 miles E of Vancor
AA	CHAL65C	2ZJO2519	H390000047	04/26/2000 11:16:47 AM			22.5 miles SW of Ma
AA	970F	7SK01017	N02000001	04/26/2000 11:07:06 AM	2150		9.6 miles S of Auror
AA	CHAL75D	5AR00544	H390000043	04/26/2000 11:04:56 AM			5.0 miles NW of Hol
AA	325B	6DN00820	D10000002	04/26/2000 11:01:20 AM	805		1.3 miles E of Salin

View Message History

View Event History

Status

Map

Close

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FIG - 12

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Message History

Make AA 1208

Model 1210

Unit EAE100037 1242

Serial PL207OFFBDTST14 1238

Viewing 1 1222

To 91 1204

<<Back

More>>

Date / Time	SMU	Fuel	Location
04/13/2000 08:35:48 AM	431		2.7 miles N of Peoria, IL
04/13/2000 08:34:57 AM	431		2.7 miles N of Peoria, IL
04/13/2000 08:03:11 AM			2.7 miles N of Peoria, IL
04/13/2000 08:03:11 AM			2.7 miles N of Peoria, IL
04/12/2000 01:54:01 PM			2.6 miles N of Peoria, IL
04/12/2000 07:52:43 AM			2.7 miles N of Peoria, IL
04/12/2000 01:52:43 AM			2.7 miles N of Peoria, IL
04/11/2000 07:53:44 PM		260310	2.7 miles N of Peoria, IL
04/11/2000 07:53:24 PM			2.7 miles N of Peoria, IL
04/11/2000 02:01:15 PM			2.7 miles N of Peoria, IL
04/11/2000 08:12:35 AM			2.7 miles N of Peoria, IL
04/11/2000 01:55:31 AM			2.7 miles N of Peoria, IL
04/10/2000 07:53:11 PM	431		2.7 miles N of Peoria, IL
04/10/2000 07:52:50 PM			2.7 miles N of Peoria, IL

☒ Status
 ☒ Location
 ☒ SMU
 ☒ Fuel

"Fuel" is a calculated value to be used as a service indicator only.
 This value is NOT to be used in economy of performance measurements.

Close

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FIG - 13

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1318 1316 1342 1320 1340 1314 1310 1308 1332 1336 1338 1330 1328 1324 1346

Event History

Make AA 1308 Model Tesimod 1310 Unit EAE100037 1314

Serial 1334 PL2010FFBD1S14 1336

Viewing 1 20 <<Back >>More

Level	Date / Time	Description	Module	Fault Codes	Occurrences
1	04/20/2000 03:13:56 PM	PL-201 Product Watch Exclusive Alarm	122	Alarm	0
1	04/20/2000 03:13:56 PM	PL-201 Product Watch Time Alarm	122	Alarm	0
2	04/18/2000 10:13:58 AM	Digital Input 1	122	EID:00630	0
1	04/18/2000 10:12:06 AM	Fuel Filter Restriction Warning	033	EID:00095	255
2	04/18/2000 10:12:06 AM	Engine Oil Pressure short to ground	033	CID:00100, FMI:004	2
2	04/18/2000 10:12:06 AM	Unfiltered Fuel Pressure open/short to +batt	033	CID:00289, FMI:003	2
2	04/18/2000 10:12:06 AM	Turbo Outlet Pressure open/short to +batt	033	CID:00273, FMI:003	2
2	04/18/2000 10:12:06 AM	Secondary Engine Speed open/short to +batt	033	CID:00342, FMI:003	2
2	04/18/2000 10:12:06 AM	Throttle Position signal abnormal	033	CID:00091, FMI:008	2
1	04/18/2000 10:11:56 AM	High Crankcase Pressure Warning	033	EID:00101	78
2	04/18/2000 10:11:56 AM	Crankcase Pressure open/short to +batt	033	CID:00101, FMI:003	2
2	04/18/2000 10:11:56 AM	Unfiltered Engine Oil Pressure short to ground	033	CID:00542, FMI:004	2
2	04/18/2000 10:11:56 AM	Right Exhaust Temperature short to ground	033	CID:00828, FMI:004	2
2	04/18/2000 10:11:56 AM	Left Exhaust Temperature short to ground	033	CID:00827, FMI:004	2

Events ☒ Diagnostics ☒ Alarms

Request Update Close

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FIG - 14

FIG - 14 is a screenshot of a software application window 1400, titled "Status" 1408. The window displays a table 1402 with columns: Make, Model, Serial, Unit, Date / Time, Power Loss, Satellite Blocked, and Active. The table lists various satellite units and their status. Below the table are two buttons: "View Message History" 1424 and "View Event History" 1426. A "Close" button 1428 is located at the bottom right of the window.

Make	Model	Serial	Unit	Date / Time	Power Loss	Satellite Blocked	Active
AA	CHAL55	7DM01494	H39000037	04/26/2000 12:52:36 PM			No
AA	CHAL55	AEN00410	H39000042	04/26/2000 12:50:41 PM			No
AA	CHAL35	8DN00372	H39000029	04/26/2000 12:49:35 PM			No
AA	D250E	5TN01156	B19000009	04/26/2000 12:39:29 PM			No
AA	D8R	8BL01064	D43000009	04/26/2000 12:39:09 PM	Yes	No	No
AA	CHAL35	8DN00525	H39000018	04/26/2000 12:21:36 PM			No
AA	D5C	6CS00467	B19000011	04/26/2000 12:18:20 PM			No
AA	CHAL65C	22J02409	E25000001	04/26/2000 12:07:14 PM			No
AA	D6X	AAAX00006	N02000000	04/26/2000 12:06:43 PM	No	No	No
AA	D5M	6GN01196	EAE100004	04/26/2000 12:04:27 PM	No	No	No
AA	416C	4ZN17140	B19000024	04/26/2000 11:58:33 AM			No
AA	973	66G00646	E25000001	04/26/2000 11:53:47 AM			No
AA	D6MXB	ALH00002	EAE100004	04/26/2000 11:51:55 AM			No
AA	CHAL45	1DR01733	H39000005	04/26/2000 11:50:47 AM	No	No	No
AA	CHAL45	1DR01740	H390000031	04/26/2000 11:45:56 AM			No
AA	CHAL65C	22J02434	H390000021	04/26/2000 11:44:36 AM			No
AA	776D	2YW000094	E35000006	04/26/2000 11:37:48 AM	No	No	No
AA	CHAL65C	9TK01973	H390000034	04/26/2000 11:23:29 AM			No

FIG - 15

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FIG - 16

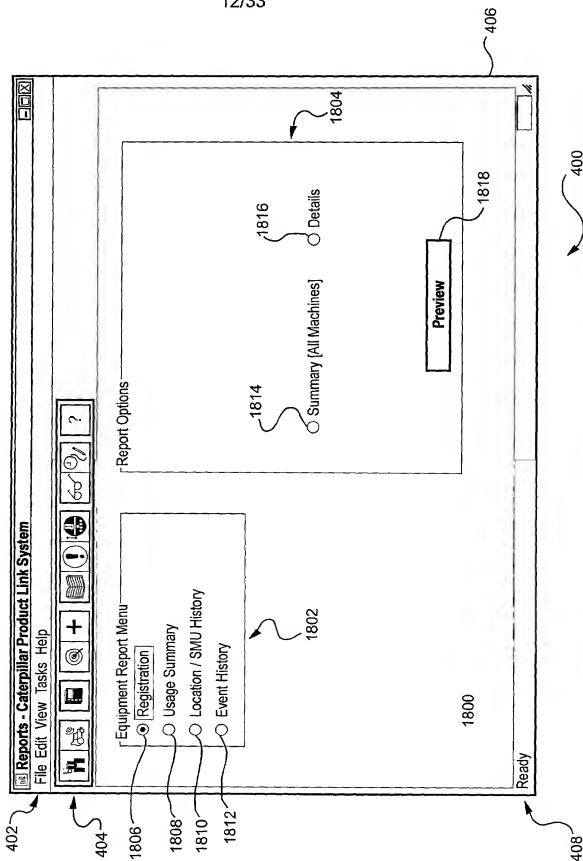
Product Watch Details For 1A12105 - EAE100015 - 143H - AA

Inclusive	Exclusive	Time
Active : No	Active : Yes	Active : Yes
Alarm : No	Alarm : No	Alarm : No
Latitude : N 40 44.48333	Position(1) : N 40.47 05000	Week Days : Mon, Tues, Wed, Thr, Fri,
Longitude : W 089 29.35000	-Latitude : N 40.47 05000	Start Time : 05:00 AM
Radius : 1 Miles	-Longitude : W 089 36.55000	End Time : 10:00 AM
Start Time : Start Immediately	-Radius : Start Immediately	Description : MG Time Based Running Te
End Time : Never End	-Description : 1 Miles	
Description : PPG Shop Vicinity - Test case	-Description : Hale Road Exclusion	

Close

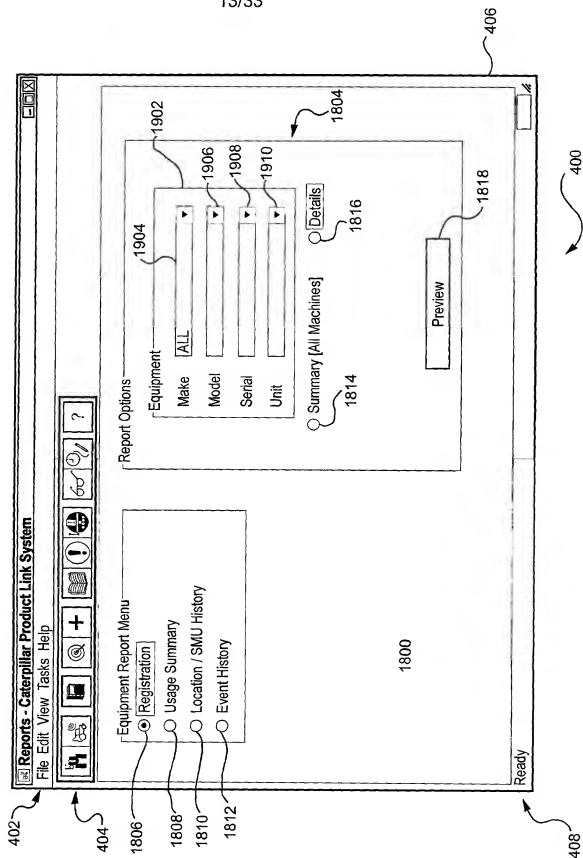
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FIG - 18



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FIG - 19



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FIG - 20

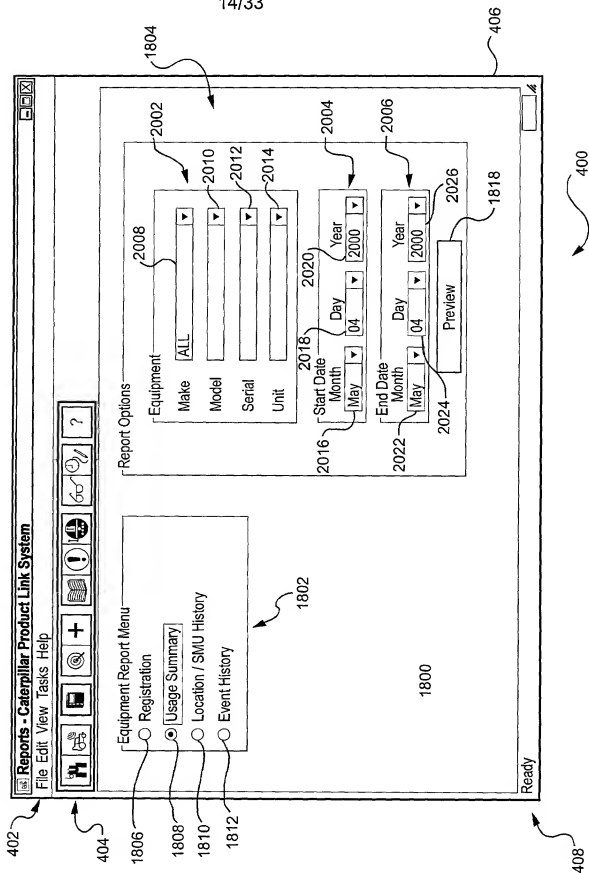
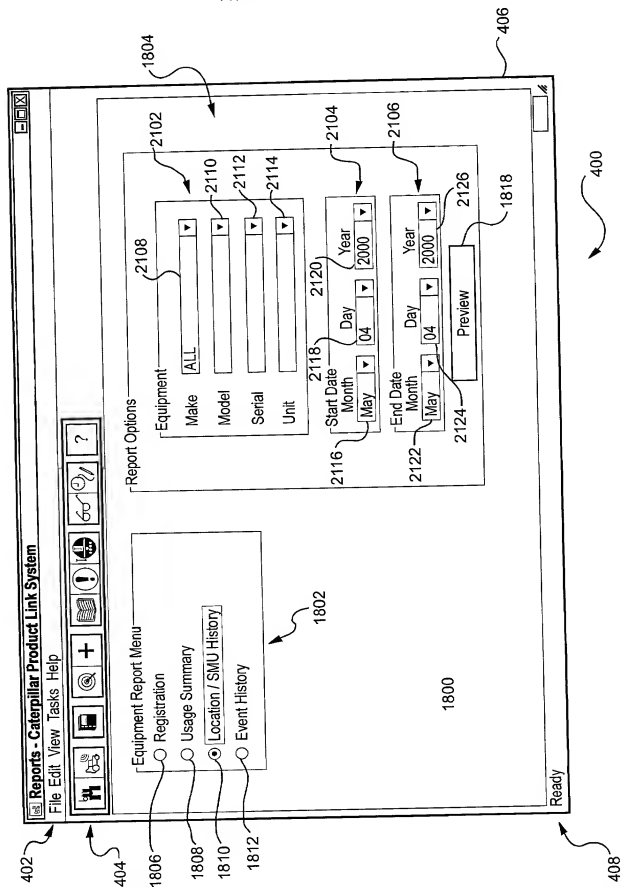


FIG - 21



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FIG - 22

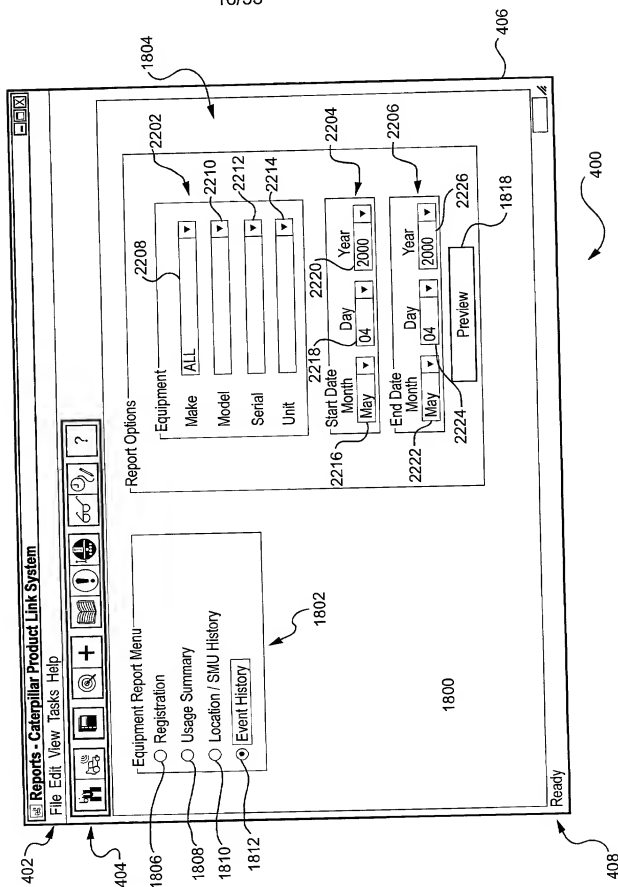
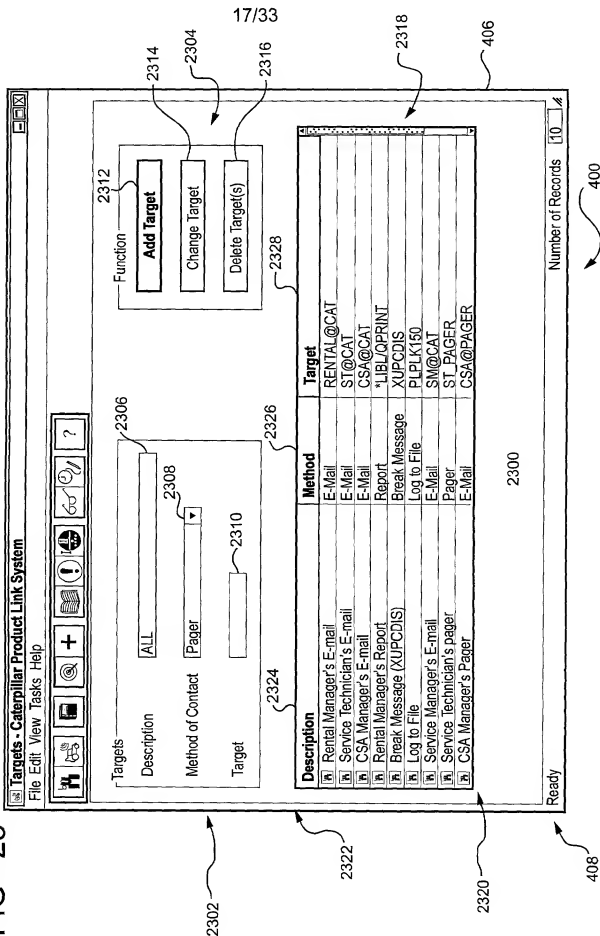


FIG - 23



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FIG - 24

FIG - 24 is a screenshot of a software interface titled "Event Reactions - Caterpillar Product Link System". The interface includes a menu bar with "File", "Edit", "View", "Tasks", and "Help". Below the menu bar is a toolbar with icons for file operations, editing, and viewing. The main area is divided into several sections:

- Equipment Section (2408):** Contains dropdown menus for "Make" (AA), "Model" (AA), "Serial" (AA), and "Unit" (AA).
- Function Section (2404):** Contains buttons for "Add Reaction" (2418), "Change Reaction" (2420), and "Delete Reaction(s)".
- View Section (2406):** Contains buttons for "Events" (2422), "Diagnostics" (2424), "Alarms" (2426), and "Levels" (2428).
- Table Section (2430):** A table with columns: Make, Model, Serial, Unit, Event, and Target. The table contains several rows of data, including "Engine Oil Pressure High Shutdown", "High Engine Oil Temperature Warning", "High Air Filter Restriction", "Low Transmission Oil Pressure Warning", "Low Engine Coolant Level Warning", "Air Filter Restriction Derate", "High Engine Oil Temperature Warning", "Engine Oil Pressure High Warning", and "Cylinder #2 Spark Plug Maintenance Required".
- Bottom Section (2432):** Contains buttons for "List By Make" (2434), "List By Make and Model" (2436), "List By Make Model Serial" (2440), and "List All" (2442). It also includes a "Number of Records" field (2440) showing "9" and a "Ready" status indicator (2438).

The interface is labeled with various reference numerals: 402 for the title bar, 404 for the menu bar, 2408 for the equipment section, 2404 for the function section, 2406 for the view section, 2430 for the table, 2432 for the bottom section, 2434 for the "List By Make" button, 2436 for the "List By Make and Model" button, 2440 for the "List By Make Model Serial" button, 2442 for the "List All" button, 2438 for the "Number of Records" field, and 408 for the "Ready" status indicator.

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FIG - 25

Diagnostic Reactions - Caterpillar Product Link System
File Edit View Tasks Help

Equipment: Make AA Model Serial Unit

Function: Add Reaction (2418) Change Reaction (2420) Delete Reaction(s) (2420)

View: Events (2422) Diagnostics (2424) Alarms (2426) Levels (2428)

Make	Model	Serial	Unit	Diagnostic	Target
AA	CHAL35			Engine Coolant Temperature below normal	Log to File
AA	CHAL45			Low Coolant Level	Service Technician's E-mail
AA	CHAL45			Low Coolant Level	Service Technician's E-mail
AA	CHAL55	7DM07103		Transmission Oil Pressure below normal	Service Technician's Pager
AA	CHAL75E	16HS00353		Transmission Oil Pressure above normal	Service Manager's E-mail
AA	416C			Hydraulic Oil Temperature signal abnormal	Rental Manager's Pager
AA	966G	9MM00695		Engine Coolant Temperature above normal	GSA Manager's E-mail
AA				Service Engine Lamp open/short to +batt	Rental Manager's Report

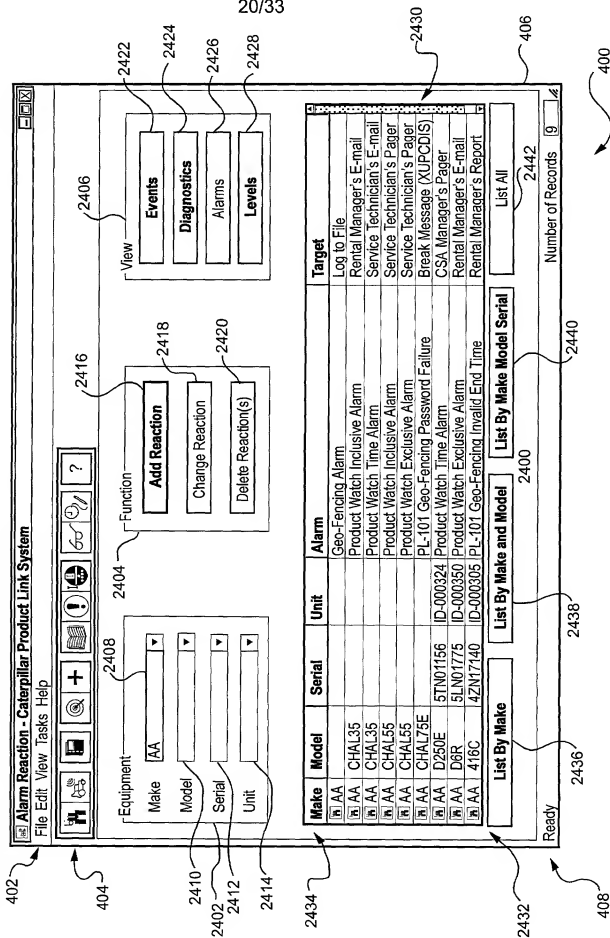
Ready (2432)

List By Make (2436) List By Make and Model (2438) List By Make Model Serial (2440) List All (2442)

Number of Records 18 (2406)

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FIG - 26



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FIG - 27

Level Reactions - Caterpillar Product Link System

File Edit View Tasks Help

Equipment: Make AA, Model, Serial, Unit

Function: Add Reaction, Change Reaction, Delete Reaction(s)

View: Events, Diagnostics, Alarms, Levels

Make	Model	Serial	Unit	Level	Target
AA	AA			Level 1	Log to File
AA	AA			Level 2	Log to File
AA	AA			Level 3	Log to File
AA	CHAL35	8DN00507	ID-000159	Level 2	Rental Manager's Report
AA	CHAL55			Level 3	Service Technician's Pager
AA	CHAL75E			Level 2	Service Technician's E-mail
AA	D250E	5TN01156	ID-000324	Level 1	Service Manager's E-mail
AA	416C	4ZN17140	ID-000305	Level 3	CSA Manager's E-mail

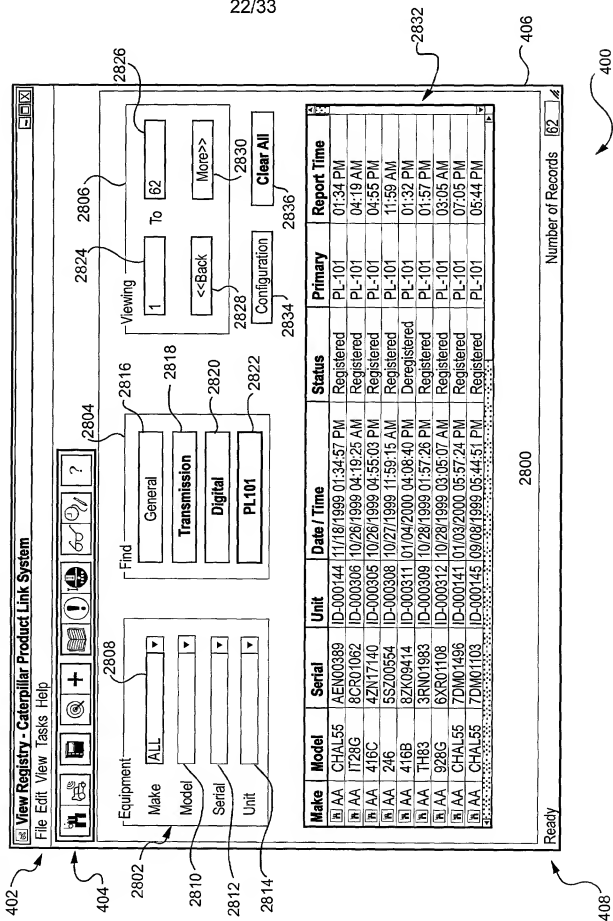
Ready

List By Make, List By Make and Model, List By Make Model Serial, List All

Number of Records: 8

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FIG - 28



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FIG - 29

View Registry - Caterpillar Product Link System

File Edit View Tasks Help

Equipment: 2808

Make: 2802 [ALL] 2810

Model: 2812

Serial: 2814

Unit: 2816

Find: 2804

General: 2818

Transmission: 2820

Digital: 2822

PL101: 2824

Viewing: 2826

1: 2828

To: 18: 2830

<<Back: 2832

More>>: 2834

Configuration: 2836

Clear All: 2838

Diagnostic Event Interval: 2800

Make	Model	Serial	Unit	Level 1	Level 2	Level 3	Diagnostic Event Interval	Mess
AA	CHAL75E	6HS00365	ID-000329	Never	Next	Immediate	20	168
AA	CHAL85E	6JS00400	ID-000330	Never	Next	Immediate	20	168
AA	CHAL75E	6HS00363	ID-000328	Never	Next	Immediate	20	168
AA	CHAL75E	6HS00356	ID-000333	Never	Next	Immediate	20	168
AA	CHAL75E	6HS00366	ID-000335	Never	Next	Immediate	20	168
AA	CHAL95E	6KS00476	ID-000336	Never	Next	Immediate	20	168
AA	CHAL75E	6HS00353	ID-000334	Never	Next	Immediate	20	168
AA	627F	1DL00400	ID-000338	Immediate	Next	Immediate	20	168
AA	CHAL95E	6KS00474	ID-000345	Never	Next	Immediate	20	168

Ready: 408

Number of Records: 18: 400

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FIG - 30

402

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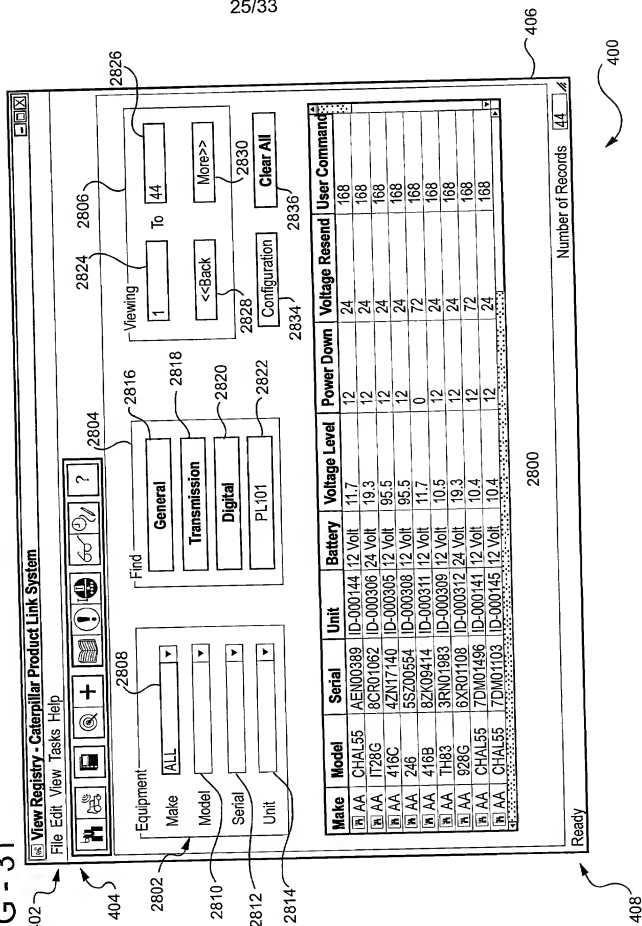
Make	Model	Serial	Unit	Type 1	Delay 1	Description 1	Type 2	Delay 2
AA	CHAL75E	6HS00365	ID-000329	Not Configured	0	Not Configured	Not Configured	0
AA	CHAL85E	6JS00400	ID-000330	Not Configured	0	Not Configured	Not Configured	0
AA	CHAL75E	6HS00363	ID-000328	Not Configured	0	Not Configured	Not Configured	0
AA	CHAL75E	6HS00366	ID-000333	Open	10	Digital #1 Sensor	Closed	20
AA	CHAL75E	6HS00366	ID-000335	Not Configured	0	Not Configured	Not Configured	0
AA	CHAL95E	6KS00476	ID-000336	Not Configured	0	Not Configured	Not Configured	0
AA	CHAL75E	6HS00363	ID-000334	Not Configured	0	Not Configured	Not Configured	0
AA	627F	1DL00400	ID-000338	Not Configured	0	Not Configured	Not Configured	0
AA	CHAL95E	6KS00474	ID-000345	Not Configured	0	Not Configured	Not Configured	0

Ready

Number of Records 18

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FIG - 31



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FIG - 32

View Service Meter Adjustments - Caterpillar Product Link System

File Edit View Tasks Help

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FIG - 33

View Grief - Caterpillar Product Link System

File Edit View Tasks Help

Equipment Make Model Serial Unit

Make [ALL] Model [] Serial [] Unit []

Viewing 1 To 100 More>> Clear All Find

Description

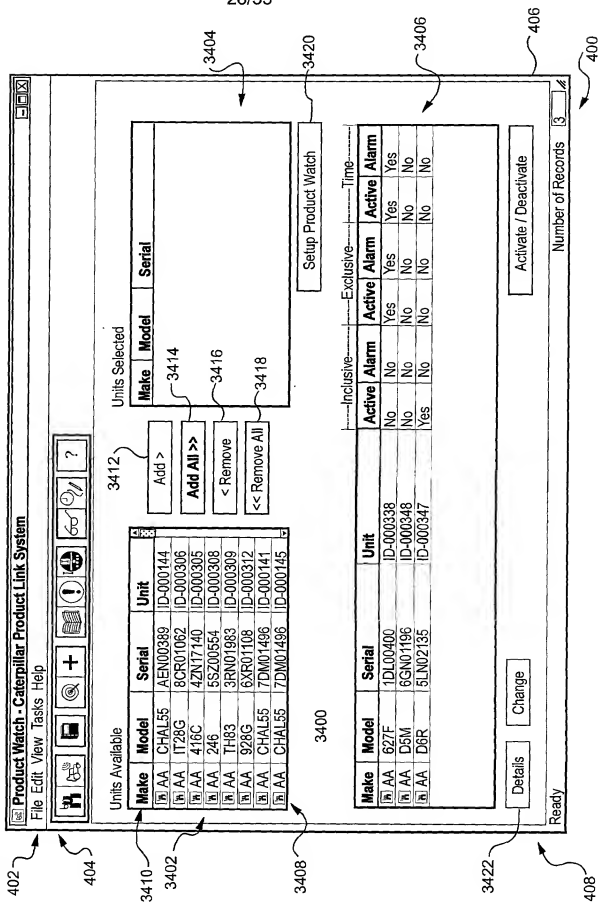
Make	Model	Serial	Unit	Date / Time	Description
AA	CHAL45	1DR0767	ID-000149	01/07/2000 02:34:44 PM	Target Reaction Failure - Report Target *LIBU/
AA	CHAL35	8DN00867	ID-000162	01/07/2000 02:13:01 PM	Target Reaction Failure - Report Target *LIBU/
AA	CB-534C	5HN00399	ID-000281	01/06/2000 08:29:42 PM	Target Reaction Failure - Report Target *LIBU/
AA	416C	5YN00303	ID-000250	01/06/2000 04:45:26 PM	Target Reaction Failure - Report Target *LIBU/
AA	CHAL45	1DR07104	ID-000151	01/06/2000 04:39:41 PM	Target Reaction Failure - Report Target *LIBU/
AA	D250E	5TN07156	ID-000324	01/06/2000 02:24:04 PM	Target Reaction Failure - Report Target *LIBU/
AA	CHAL35	8DN00867	ID-000162	01/06/2000 02:12:53 PM	Registration Failure
AA	D3C	4KS00574	ID-000238	01/06/2000 02:07:23 PM	Target Reaction Failure - Report Target *LIBU/
AA	928G	6XR01108	ID-000312	01/05/2000 11:25:21 PM	Target Reaction Failure - Report Target *LIBU/

Number of Records 346

Ready

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FIG - 34



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FIG - 35

FIG - 35 is a screenshot of a "Setup-Change Product Watch" window. The window is divided into several sections:

- Product Watch Inclusive:** Contains a "Select Position" section with input fields for Latitude, Longitude, and Radius (in Miles). Below these is a "Load" button.
- Product Watch Exclusive:** Contains a "Start Date" section with dropdowns for Month (April), Day (26), and Year (2000), and radio buttons for "Start Immediately" and "AM/PM". Below this is an "End Date" section with similar dropdowns and a "Never End" checkbox.
- Product Watch Time:** Contains a "Product Watch Description:" section with a table listing various locations and their coordinates/radius.
- Buttons:** "Queue" and "Cancel" buttons are located at the bottom right.

The "Product Watch Description:" table is as follows:

Description	Latitude	Longitude	Radius
Springfield, IL Airport	N 39 50.98333	W 089 40.98333	5 mile
Main Store	N 39 27.93333	W 089 22.18333	10 mile
Branch Store	N 39 24.80000	W 089 17.25000	10 mile
Customer Main Site	N 39 27.83333	W 089 26.31667	7 mile
Customer Off Site	N 39 25.71667	W 089 23.60000	7 mile
Customer Digging Site	N 39 24.73333	W 089 21.11667	5 mile
Customer Home	N 39 25.33333	W 089 21.85000	2 mile

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FIG - 37

100221*520/2001

3504

3506

3508

Setup-Change Product Watch

Product Watch Inclusive | Product Watch Exclusive | Product Watch Time

3702

Days

☐ Monday ☐ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday ☐ Saturday ☐ Sunday

Clear

Working Hours

Start Time 00:00 AM ☐ AM ☐ PM

End Time 00:00 AM ☐ AM ☐ PM

Clear

3704

3708

Load

3706

Product Watch Description:

Description	Start Time	End Time	Days
Working Hours for M...	07:00:00 AM	11:00:00 PM	Mon - Tue - Wed - Thr - Fri
Main Store Hours ...	08:00:00 AM	05:00:00 PM	Mon - Tue - Wed - Thr - Fri
Weekend Hours ...	01:00:00 PM	02:00:00 AM	Sat - Sun
Working Hours for B...	06:00:00 AM	06:00:00 PM	Mon - Tue - Wed - Thr - Fri - Sat
Customer Work Hour...	07:00:00 AM	06:00:00 PM	Mon - Tue - Wed - Thr - Fri
Branch Store Hours...	08:00:00 AM	06:00:00 AM	Mon - Tue - Wed - Thr - Fri

3524

Queue

3526

Cancel

3500

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FIG - 38

Product Watch Details For 1DL00400 - ID-000338 - 627F - AA

Inclusive	Exclusive	Time
<p>3802</p> <p>Active : No Alarm : No Latitude : N 39 43.43333 Longitude : W 089 39.55000 Radius : 2 Miles Start Time : Start Immediately End Time : Never End Description : Customer Off Site</p>	<p>3804</p> <p>Active : Yes Alarm : Yes Position(1) : N 39 85.61667 -Latitude : W 089 68.50000 -Longitude : 1 Miles -Radius : Description : Springfield, IL Airport Position(2) : N 39 42.36667 -Latitude : W 089 36.68333 -Longitude : 2 Miles -Radius : Description : Customer Home Position(3) : N 39 46.91667 -Latitude : W 089 37.61667 -Longitude : 10 Miles -Radius : Description : Main Store</p>	<p>3806</p> <p>Active : Yes Alarm : Yes Week Days : Mon, Tues, Wed, Thr, Fri Start Time : 07:00 AM End Time : 06:00 AM Description : Customer Work Hours</p>

Navigation: << Backward Forward >> Close

3808 3810 3812 3800

FIG - 39

